U.S. EPA Environmental Technology Verification Program
Advanced Monitoring Systems (AMS) Center

Water Stakeholder Committee Teleconference
Monday, April 24, 2006
1:00 pm – 3:00 pm *Eastern*

Teleconference Meeting Minutes

AGENDA

Welcome, Agenda, and Meeting Objectives	Rachel Sell, Battelle
ETV Program Update	Amy Dindal, Battelle
Stakeholder Introductions and Insights	Rachel Sell/ Stakeholders
Update on Verification Activities ▪ Ballast Water Monitors ▪ Arsenic Monitors (Round 3) ▪ Beach Monitoring	Amy Dindal
Potential Technology Categories ▪ Microcystins ELISA Test Kits ▪ Estrogen ELISA Test Kits ▪ Chemical Oxygen Demand Techniques ▪ Multi-Parameter Water Monitors	Ryan James, Battelle
Hot Topics	Rachel Sell
Next Meeting	Rachel Sell
Wrap-up and Action Items	Rachel Sell
Adjourn	

ATTENDEES

Stakeholder Committee Members:
John Carlton, Alabama Department of Environmental Management (retired)
Christine Kolbe, Texas Commission on Environmental Quality
Marty Link, Nebraska Department of Environmental Quality
Alan Mearns, Hazardous Materials Response Division, National Oceanic and Atmospheric Administration (NOAA)
Lisa Olsen, U.S. Geological Survey (USGS)
Rick Sakaji, California Department of Health Services
Geoff Scott, NOAA/NOS Center for Coastal Environmental Health & Biomolecular Research
Ken Wood, DuPont

ETV AMS Center Staff:
Amy Dindal, Battelle
Ryan James, Battelle
Bob Fuerst, EPA/RTP
Rachel Sell, Battelle

Welcome, Agenda, and Meeting Objectives

Rachel Sell, Battelle AMS Center Stakeholder Committee Coordinator, welcomed the committee stakeholders to the second AMS Center Water Stakeholder Committee teleconference of 2006.

ETV Program Update

Amy Dindal, Battelle AMS Center Verification Testing Leader, provided an update on the ETV Program, including an overview of the 2nd International Environmental Technology Verification Forum held in Vancouver on March 28 and the availability of the recently published ETV Program Case Studies document available on the ETV web site. Regarding the AMS Center, Ms. Dindal summarized recent water, water security, and air verifications that have either completed or are in-progress. Finally, she discussed the future of the ETV Program and the impact of the current funding situation on the sustainability of the AMS Center.

Stakeholder Introductions and Insights

Ms. Sell asked each stakeholder to provide a brief introduction, describe his or her role within their organization, and any ideas they may have regarding leads for long-term collaborations for the AMS Center to pursue. Responding to a question from a stakeholder, Ms. Sell noted that opportunities for long-term collaborations may exist in federal or local agencies as well as within trade associations and industry.

Lisa Olsen recommended looking at the American Competitiveness Initiative and offered to send the web site to the stakeholder committee. (Post-meeting note: Ms. Olsen sent two web sites regarding the initiative, http://www.whitehouse.gov/stateoftheunion/2006/aci/ and http://www.whitehouse.gov/stateoftheunion/2006/aci/aci06-booklet.pdf.)

Alan Mearns suggested exploring the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET) for potential collaboration opportunities. The AMS Center has spoken to them on previous occasions. An action item was made for Ms. Dindal to touch base with Kalle Matso again.

Geoff Scott said the National Environmental Observing Network (NEON), an initiative funded by the National Science Foundation (NSF), is the first national ecological observation system designed to answer scientific questions at regional and continental scales, is starting to get off the ground. Dr. Liz Blood is the NSF program director for NEON. More information can be found at: http://www.nsf.gov/news/news_summ.jsp?cntn_id=100445. Dr. Scott also suggested checking with the NOAA-funded Alliance for Coastal Technologies (ACT) http://www.act-us.info/ as they might be interested in participating in a long-term collaboration and would complement the ETV Program. The AMS Center has spoken to ACT on previous occasions and Mario Tamburri of ACT has participated in a stakeholder meeting. An action item was made for Ms. Dindal to contact Mario Tamburri again.

Ken Wood described his interest in whole effluent toxicity testing. He recognized that the AMS Center has verified rapid toxicity technologies under the water security arm of the AMS Center, and recognized the dual-use of these technologies that are also important in environmental water monitoring as well.

Christine Kolbe mentioned that she is working with the USGS and the National Park Service (NPS) on a continuous water quality monitoring project in the Houston-Galveston area and the Rio Grande. She said they are using multi-parameter water sensors from Greenspan Analytical, an Australian company

Rick Sakaji said there was interest in the verification of test kits for microcystins in California and he has seen the Battelle proposal to the State Water Resources Board for a microcystins ETV test. He also suggested developing a resource funding guide that could be offered to vendors on available loans or grants. Ms. Dindal noted that under SBIR Phase II, ETV can provide letters of support for vendors. This idea would be good to provide to the ETV Program Office.

Bob Fuerst, EPA Project Officer for the AMS Center, thanked the stakeholders for their continued support and said to let him or Ms. Dindal know of any potential ideas or sources of funding.

Update on Verification Activities

Ms. Dindal provided an update on three verification activities. She reviewed slides from a PowerPoint presentation distributed to stakeholders before the teleconference.

Vendor recruitment for the **Ballast Water Monitoring** verification will be initiated once co-funding from the Coast Guard is secured. Perhaps by the next teleconference the experimental design for this verification can be discussed.

The testing of an **Arsenic Analyzer (Round 3)** was initiated in late February and completed in March. The technology tested was the SafeGuard™ Arsenic Analyzer from TraceDetect. The other vendor, SpectraSensors, withdrew from the test to further develop their analyzer. Dr. Sakaji

asked what Total Dissolved Solids (TDS) values were reported for the SafeGuard™ Arsenic Analyzer. (Post-meeting note: According to the Verification Test Coordinator, Anne Gregg, TDS was not analyzed in the water samples that were tested, so TDS levels in the tested samples are unknown.) Dr. Sakaji noted that the secondary maximum contaminant level (MCL) range for TDS based on conductivity is 900 micromhos per centimeter, with an upper limit of 1,600 and a short term level of 2,200. The TDS would be 500 mg/L, with an upper limit of 1,000 and short term limit of 1,500. Since TDS was not measured in any of the water samples, the information provided by Dr. Sakaji will be considered for future tests.

Dr. Sakaji also asked how sensitive the test was in identifying inter-unit differences. (Post-meeting note: Ms. Gregg said that a paired t-test was performed to evaluate whether the sample results were significantly different at a 95% confidence level. The results from the two units tested were significantly different (0.05 level) when operated by the technical user, but not different at the 0.05 significance level for the non-technical user. For this data set (20 data points), a difference of about 10% or more was considered statistically significant. The difference between the average result of the two units when operated by the technical user was 17% whereas the difference with the non-technical user was 7%. Neither Unit #1 or #2 showed a significant operator bias at the 0.05 level. The % difference in the two operator means was 8% and 2% for Unit # 1 and Unit # 2 respectively. Sensitivity and power (β) of the test will be discussed in the final report to address Dr. Sakaji's comment.)

The **Beach Monitoring** verification test is expected to begin around Labor Day, 2006, in collaboration with New York Suffolk County Department of Health Services. Currently, four vendors have signed vendor agreements and seem pleased with the current test design. Ms. Olsen asked if the testing will include damp sand as it could be another source of pathogens. (Post-meeting note: Ms. Sell provided this comment to Ann Louise Sumner, AMS Center Verification Test Coordinator, as she works through the details of the test with Vito Minei and his lab director.)

Post-meeting note: Dr. Sakaji said that the Orange County Health Agency might be interested in assisting with the beach monitoring verification, which might benefit the program from doing a west coast and east coast site. He suggested that Battelle follow-up with Larry Honeybourne at (714) 667-3750 or (LHoneybourne@hca.co.orange.ca.us).

Potential Technology Categories

Ryan James, Battelle AMS Center Verification Test Coordinator, provided an update on the status of four potential technology categories.

There is a possible collaboration for verification of **Immunoassay Test Kits for Microcystins**; Battelle is currently in discussions with Blue-Green Algae Task Force, primary contact is with EPA Region 9. Dr. James will follow-up with Maria Rea in EPA Region 9 regarding this opportunity.

Dr. Mearns said that blue-green algae is a problem at Green Lake Park in Seattle. Dr. James will follow up with Dr. Mearns on potential leads within the City of Seattle.

Ms. Olsen asked if the test kits measured other toxins. Dr. James said that if an antibody can be developed for the toxin then it would be possible. Ms. Dindal added that Abraxis has an ELISA kit for domoic acid. When developing the experimental design for the microcystin test kits, Dr. Sakaji said to measure free product, not cellular product, and to be aware of how to interpret the results of the environmental samples.

Dr. James reported that with additional funding, a verification of **Estrogen ELISA test kits** could started in FY06. There is interest and limited funding within EPA Region 3 to support a verification test.

Ms. Olsen said that she would provide contact information for Julie Kiang of the Interstate Commission on the Potomac River Basin (ICPRB) who might be interested in this verification. (Post-meeting note: Ms. Olsen sent an email with contact information for Traci Kammer Goldberg (tgoldberg@fairfaxwater.org) of Fairfax County Water Authority, the current contact for the Potomac River Basin Drinking-Water Source-Protection Partnership. Julie Kiang of ICPRB was the previous point person. Ms. Dindal forwarded the information to Ron Landy in EPA Region 3 and will follow-up with him.)

Dr. Sakaji noted that the WateReuse Foundation or the Water Environment Foundation might be interested in the estrogen ELISA test kit verification. Post-meeting note: Dr. Sakaji said it would be best if the AMS Center could partner with a member agency such as a large sanitary district that practices water reuse. Potential partners could include: Orange County Water District (Michael Wehner; mwehner@ocwd.com; (714) 378-3297), West Basin (Rich Nagel; richn@wcbwater.org; (310) 660-6210), or County Sanitation Districts of Los Angeles County (Vicki Conway; (562) 908-4288 x2502).

Dr. James said that no testing has been previously conducted for **Chemical Oxygen Demand Techniques**, but that test kits are often used. Eleven commercially available technologies have been identified. Mr. Wood said that many plants at DuPont use the Hach spectrophotometer COD kits, but the new methods seem to be much quicker. He said that a lot of groups, such as the National Water-Quality Assessment Program (NAWQA), would be interested in a verification of this technology category. Ms. Dindal said that the AMS Center plans to contact the Water Environment Federation (WEF).

Finally, Dr. James described a potential verification of **Multi-Parameter Water Monitors** using a grab sampling technology by Sensicore. Previous verification tests in this area were applied within a distribution system from a water security standpoint or included sondes in open water sources. This latest verification could include testing source and finished drinking water samples. Ms. Kolbe said that it may be feasible to test the other multi-parameter water sensors (e.g., the Greenspan system) simultaneously with the Sensicore system. An action was taken for Dr. James to follow-up with Ms. Kolbe to discuss multi-parameter water sensors.

Post-meeting note: Ms. Olsen forwarded a list of additional vendors for this category.

Dr. Mearns asked if the Sensicore system could be applied to saltwater. Dr. James will check on this question with Sensicore.

Dr. Sakaji said that for drinking water, or in-plant compliance monitoring, the verification needs to include free and residual chlorine measurements as well as turbidity measurements. He mentioned using EPA Method 180.1 as a reference method for turbidity. Ms. Olsen said that in addition to finished water applications, there is interest in environmental and wastewater applications.

Members of the committee supported proceeding with this verification. Ms. Kolbe, Mr. Wood, and Ms. Olsen volunteered to meet again to discuss the development of the test/QA plan. Ms. Kolbe also expressed interest in supporting the test.

Hot Topics

Ms. Sell asked the stakeholders if they were aware of any new opportunities that the ETV/AMS Center should be exploring, and when making a recommendation, to try to indicate the level of importance or priority the technology category exhibits.

Dr. Sakaji suggested testing UV sensors and offered to provide a lead at HydroQual who does testing in this area. (Post-meeting note: Dr. Sakaji said that that Karl Scheible at HydroQual has the primary responsibility for the UV testing facility at Johnstown, NY. He can be contacted at (201) 529-5151 or kscheible@hydroqual.com. They have tested UV reactors for the New York City water supply and may be able to provide the AMS Center with direction on UV sensor testing.)

Upcoming Schedule

Ms. Sell said that because of busy travel schedules during the summer months, another teleconference would be ideal. The stakeholders agreed that having a teleconference in the summer made sense. She noted the next teleconference would be planned for in the late July/early August timeframe. Ms. Sell said the AMS Center would explore the idea of having an in-person meeting in late Fall of 2006.

Wrap-up and Review of Action Items

Ms. Sell reviewed the action items brought forth on the call:

1. Ms. Olsen will pass along the link for the American Competitiveness Initiative to Battelle. (Action completed after the teleconference.)
2. Battelle will touch base again with CICEET and ACT on potential long-term partnerships.
3. Battelle will follow up with Dr. Sakaji regarding his questions on the Arsenic Analyzers (Round 3) verification. (Action completed after the teleconference.)
4. Battelle will contact Larry Honeybourne with the Orange County Health Agency regarding the beach monitoring verification.
5. Dr. James will follow-up with Maria Rea in EPA Region 9 regarding the microcystins verification.
6. Dr. James will follow up with Dr. Mearns on potential leads within the City of Seattle for microcystins testing.

7. Ms. Olsen will pass along information for the Potomac River Basin Drinking-Water Source-Protection Partnership. (Action completed after the teleconference.)
8. Battelle will follow up on suggestions provided by Dr. Sakaji for the Estrogen ELISA test kits verification.
9. Dr. James will follow-up with Ms. Kolbe to discuss multi-parameter water sensors.
10. Dr. James will check if the Sensicore system can be used for saltwater applications.
11. Battelle will follow up on the suggestion provided by Dr. Sakaji for testing UV sensors.
12. As an action item from the February 6 teleconference, Dr. Mearns said that he will check on potential opportunities in the area of dissolved oxygen monitoring at NOAA's National Centers for Coastal Ocean Science (NCCOS) Kasitsna Bay Laboratory as well as contact the Northwest Straits Commission and investigate ETV co-funding opportunities.

Ms. Sell thanked all of the stakeholders for attending the meeting and contributing so much to ETV. The call adjourned at 3:20 pm *Eastern*.